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ABSTRACT

This report summarizes research on retention and dropouts. Although there has been a recent resurgence of retention programs aimed at students who encounter subject-area difficulties, many studies have questioned the value of retention, especially if it is not accompanied by programs of remediation and individualized learning. However, researchers who approach this problem with statistical tools are confronted by a bewildering array of variables which are difficult to separate and even more difficult to understand except as they are interrelated. The research on dropouts is almost as difficult: several authors recommend that statistical procedures be overhauled and that methods be improved for counting the incidence of dropouts. Dropout research has focused on the following; (1) causative factors (including student variables, school characteristics, and tracking policies); (2) the economic and social costs of the dropout problem; (3) ways to prevent or alleviate the problem; and (4) the possible danger of the new movements to educational reform to at-risk students. (KH)

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# FLORIDA EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL

# RESEARCH BULLETIN

## RESEARCH SUMMARY ON RETENTION
## and
## RESEARCH SUMMARY ON DROPOUTS

by

MICHAEL SIKES

and

JOHN A. HILDEBRAND

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# Research Summary on Retention
# July 1986

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FLORIDA EDUCATIONAL
RESEARCH AND DEVELOPMENT COUNCIL INC.

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## INTRODUCTION

According to Holmes and Matthews (1985) the question of whether to promote or retain students who encounter subject-area difficulties in our public schools arose almost as early as the division of schools into different grade levels. Although the incidence of retention declined at mid-century, recent calls for school reform and competency-based education, along with a renewed emphasis on testing, have brought with them a resurgence of retention programs (Holmes & Matthews, 1985; Holmes, 1986). As this research summary will show, these changes come at a time when the weight of evidence seems to question the value of retention, especially if it is not accompanied by programs of remediation and individualized learning.

The problem, however, is not an easy one to measure. As the studies summarized herein will also show, researchers who approach this problem with statistical tools are confronted by a bewildering array of variables which are difficult to separate and even more difficult to understand except as they are interrelated.

In view of both the importance of this problem and the difficulty with which it is approached, the following questions may be posed:

1) What are the relative benefits and detriments of non-promotion and under what circumstances can it be successful?

2) How has current research attempted to answer this question and to what extent has that research been successful?

## RESEARCH ON RETENTION

Augustine McDaniel (1986) examined a longitudinal survey of the effects of the Pupil Progression Policy in the Atlanta school district over a five-year period. The philosophical basis of this policy was that each student should be given the optimum amount of time to succeed in school; therefore, each student's program is adjusted to his/her individual needs. The student's readiness for the next higher grade level is based on a number of tests and the teacher's evaluation. Students who are retained are given priority, and an individualized plan is developed for each. The study revealed:

1) Prior to the program, test scores declined progressively with each higher grade level; during the period of the program, this trend was reversed.

2) Thirty-four percent of the students were retained one or more times.

3) The test scores of the promoted students were significantly higher than those of the retained students.

4) It appears that "...retention up to the third grade was more beneficial than retention at the fourth grade..."

5) The author cited evidence that "...remedial instruction in the Chapter I Program, along with an additional year of instruction in the regular classroom, result in gains in the CAT (California Achievement Test) in reading and mathematics."

The author concluded that "retained students began with lower achievement test scores, and they remained lower over the five-year period. However, gains in NCE (Normal Curve Equivalent) scores did occur."

The author suggested revisions in the policy: "Any policy which causes 34 percent of 3,313 students to stumble early in their educational careers warrants careful re-examination." The recommendations included more flexibility in promotion requirements without lowering standards, pre-school identification of and help for potentia at-risk students, and better alternative strategies for dealing with academic problems in the classroom (presumably before retention is necessary).

Leggett in The Relationship of Student Characteristics and Benefit from Official School Nonpromotion claims that the benefits of nonpromotion are largely unsubstantiated: "Not only does the practice of nonpromotion appear to fail to provide educational benefits, it may be damaging to a student's personal and social adjustment." Nonetheless, she pointed out that the practice is prevalent.

This study attempted to determine whether certain student characteristics can be used to predict the degree and nature of benefit (or detriment) of nonpromotion to students possessing these characteristics. A comparison was made between a number of selected student variables and achievement gains as measured by the Comprehensive Test of Basic Skills. The variables were as follows: measured intelligence, race, sex, grade level retained, the age-peer index, the distance from county mean achievement scores in the year of retention and interactions of all the variable. The study reached a number of conclusions:

> Students derived self-improvement but "the majority did not benefit if the goal was having the student closely approach county norms."
>
> "...repetition did not bring the majority of students up to the grade norm either the repeated year or the following year."

The characteristics revealed to be most closely associated with the benefits of retention do not closely coincide with the characteristics of students most often nonpromoted. The students who benefited the most were "first or third graders, older than average, white, with average or above average intelligence, and reading and total achievement battery scores...of 26 to 100 points below the county mean" for the year of retention. [Those students]...have a strong probability of academic benefit from nonpromotion.

Lewis (1986) in Can you Identify Them in Advance? discussed a study conducted to determine whether certain student variables can be used to determine which students re most likely to fail because "support was found in the [existing] literature for identifying likely failures as early as possible and providing interventions designed to decrease failure rates...but a procedure for accomplishing these tasks successfully was not found."

Among the possible variables that could be correlated with student failure, the following were initially selected: student attendance, reading and math achievement test scores, race, over age status, and factor scores of a student survey which asked questions about personal history, attitudes toward school, and involvement in extracurricular activities. A number of discriminant analyses were performed on the data as well as other factors added later including grade point average,

homeroom attendance and achievement status from the previous year. Although significant correlations were revealed, the results of the survey were considered inconclusive. "The analysis did identify some key differences between promoted and non-promoted students overall, but even with these existing differences, the discriminant analysis procedure was not useful in classifying students as possible failures...This seems to indicate that efforts to identify failing students early for placement in an intervention program will have to be done by staff members at the local school level based upon a more detailed knowledge of student records and reports from teachers."

Schaefer, Hunter, and Watkins (1986) in Parenting and Child Behavior Predictors of Retention acknowledged that retention is strongly associated with school dropout and cited this connection as evidence of the need for more information on the causes of school failure and retention. "Since grade retention is one cause of a child being over age per grade during adolescence, which in turn predicts school dropout, research on antecedents and correlates of retention is needed."

A number of traditional predictors of retention have been known: sex, ethnicity, SES and educational level of parents and age of children at school entry. This report sought to correlate another factor to school retention -- the characteristics and behavior of the mothers of children during their infancy.

Data on the mothers were collected during pregnancy and at four and twelve months postnatally. The characteristics that were measured in the study included achievement press, stimulation, interaction, pleasure in parenting (positive values), low interaction, unresponsiveness, insensitivity, irritability, and punitiveness (negative values). These

factors were correlated not only with the incidence of retention but with teacher ratings of the children using the Classroom Behavior Inventory scales of verbal intelligence, curiosity/creativity, independence, task-orientation, considerateness, extroversion/introversion, dependency, distractability, and hostility.

This research determined significant correlations not only between the indices of parental behavior and those of student characteristics, but between the parenting behavior and retention. "The data consistently reveal that mothers of children retained during kindergarten are most dissimilar from mothers of children never retained...[and that] maternal behaviors and characteristics that predict child academic competence are related to child grade retention during the year of school entry and, less significantly, during the second and third year of school." The author also stated that "research suggests interventions that enrich the child's educational experience before kindergarten entrance...[are] most effective in reducing the frequency of grade retention during the school entry years."

This study concluded with a number of recommendations which are suggested by these findings:

1) Developmental kindergarten for children identified as at-risk to reinforce basic skills.

2) Remedial summer-school programs.

3) Flexible promotion standards and developmental emphasis in grades Kindergarten through two.

Holmes and Matthews (1985) in The Effects of Nonpromotion on Elementary and Junior High School Pupils: A Meta-Analysis attempted to compensate for possible biases in individual studies by using a

technique known as meta-analysis based on the analysis of all the information in a large number of such studies obtained by a computer search of databases. The statistical method entailed comparison of the mean of retained students and the mean of promoted students, divided by the standard deviation of the promoted group.

From the vast number of available studies, only those were used which 1) presented original findings on the results of junior and senior high school retention policies, 2) contained sufficient data to allow for the necessary calculations, and 3) provided a direct comparison between promoted and retained groups. The resulting statistic, known as an effect size, was computed for various possible concepts, including academic achievement, personal adjustment, and attitudes toward school.

Results of the computations indicated differences between the two groups ranging from -.16 to -.44 standard deviations in the various parameters suggesting a discernible negative effect on nonpromoted students.

To determine if these findings were influenced or biased, additional computation was performed to match the two groups on such fundamental criteria as IQ and achievement test scores. After the findings were weighted for these additional computations, an effect size of -.38 was obtained, sufficient to indicate a significant detrimental effect on nonpromoted students. "Those who continue to retain pupils at grade level," the authors argued, "do so despite cumulative evidence showing that the potential for negative effects consistently outweighs positive outcomes. Because this cumulative research evidence consistently points to negative effects of nonpromotion, the burden of proof legitimately

falls on proponents of retention plans to show there is compelling logic indicating success of their plans when so many other plans have failed."

Holmes (1986) in A Synthesis of Recent Research on Nonpromotion: A Five Year Follow-up reaffirmed the conclusion of the earlier study stating that, "reviews in the past have consistently failed to establish significant positive benefits of grade level retention." Nevertheless, as the author pointed out, there is still considerable difference of opinion regarding the matter and, with increased demands for promotional exams, some idea of the true effects of nonpromotion is more urgently needed than ever.

To provide some information on this, the author repeated the meta-analysis technique of the previous report (Holmes & Matthews, 1983), this time expanding the initial data search to encompass 800 studies. The same criteria as those of the original study were used to select 17 recent reports for the analysis.

In contrast to the earlier meta-analysis, the current study produced some surprising results. Initially, it appeared that the results were conflicting and relatively meaningless. But a closer examination of the data, along with the plotting of frequency curves, revealed a bimodal distribution and indicated that two very different types of retention programs were being studied. By identifying and separating the programs that had yielded positive results, some inferences could be drawn about their characteristics.

The positive programs appeared to have been comprised mostly of white, middle class students from two-parent families. In all the successful programs, the emphasis was on early identification and special remediation. "It seems key to these 'successful' plans that

these children were not recycled through the same educational programs but instead received specialized attention."

Despite these apparent successes, the author adhered largely to the conclusion of his earlier study. He pointed out that most of the gains demonstrated in the five successful programs appeared to have been relatively short-lived and that we can logically question data comparing grade peers. "It appears that what was effective was a large amount of individualized remedial help. The answer may lie in providing this same help, complete with individualized education plans, through part-time pull-out programs, and not through retention."

Both this and the previous study included extensive bibliographies.

In view of the conclusions of the previous two studies, especially the latter, it would perhaps be logical examine a program which does combine its retention/promotion policies with efforts at remediation. This program, reported by Rachal and Hoffman (1986), is in the Louisiana Public Schools.

This state combined the Louisiana Basic Skills Test for the detection of students with difficulties in language and mathematics with its Compensatory Education Program which provides remediation through summer and regular school session help to those students. Although retention is an individualized school decision, that decision is tied strongly to both the test results and the need for compensatory education.

The authors of this study asked the questions outlined on the following page regarding this program.

- Is retention effective for those students who lack basic skills?
- If so, under what circumstances is it most effectives?
- What is the effect of promotion on students who lack basic skills?
- Do early identification of these students and skill-specific intervention have lasting benefits?

To answer these questions, data on both retained and promoted students in the Compensatory Education Program were collected for each of the school years from 1982 to 1985. The effects of both the remedial program and retention/promotion were determined by students' performance on the Skills Test in subsequent years. Some of the results of this study are summarized below:

> Retention exerts its strongest effect on the Basic Skills Test following retention rather than in later years.

> Students retained immediately after failure on the BST require fewer years of remediation than students who are promoted after such failure. Both these results probably reflect the benefit of the extra year of schooling.

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> Students who receive only one year of remediation seem to outperform those students who receive two or three years of remediation. But the authors pointed out that this could reflect the effectiveness of early remediation or it could simply result from differences in ability level (more able students would have needed less remediation).

## SUMMARY

There seems to be general, if not unanimous, agreement that benefits of retention are inconsistent and, if not accompanied by forceful programs of intervention and remediation, their effects may actually be detrimental.

A number of the studies suggested that there are ways through which we can identify the students who might benefit from retention (as long as it is accompanied by the remediation programs) and determine under what circumstances that benefit is most likely to be felt. But almost all the reports also indicated that much research needs to be done.

This points to a problem which most or all of these studies seem to encounter: In attempting to measure the effect of a single variable, such as retention/promotion, it is difficult to separate it from other variables. Moreover, it is difficult to determine which variables should be considered, a problem pointing to the need for further research. For example, if retained students are measured against grade peers (who are at least one year younger), does this give the former group an undue advantage, because of age level, and, presumably, developmental superiority? On the other hand, if retained students are compared with age peers, how does one separate the effects of retention from the effects of ability differences?

It is obvious that no experimental design can be followed which completely eliminates these problems, because such a design would require promotion and retention decisions made for the purposes of experimentation and data collection instead of for the rightful purposes of such decisions -- to enhance the welfare and progress of the individual learner.

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# Research Summary on Dropouts

July 1986

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## INTRODUCTION

A survey of current literature on the problem of school dropouts suggests that the problem may be approached from one or more of the following perspectives:

1) The difficulty of defining dropouts and measuring the extent of the dropout problem.

2) Predicting dropouts by identifying the characteristics of students and of schools that are associated with dropping out.

3) The economic and social costs of the problem.

4) Programs to prevent dropouts.

5) The possible relationships between academic refor and dropouts.

This research summary will address the issues outlined above in considering some of the current published material on dropouts.

## The Difficulties of Defining Dropouts and Measuring the Extent of the Dropout Problem

In "Reconnecting Young," ERS Bulletin, January 1986, it is estimated that about 700,000 students dropped out in 1984-85, but, as a number of the reports show, it is difficult to get accurate figures on the extent of the problem because of administrative and statistical handicaps and the inconsistency among state and local agencies in reporting dropout related data.

Fundamental to the problem of measuring dropout rates is the more basic problem of defining the dropout. Although many districts do not express an acceptance of a given definition, the statistical method they employ implies such an acceptance, and the implied definition varies with the statistical method employed.

Thus some school districts include in their calculations students who transfer to other schools or who continue the educational process through non-school institutions (e.g., military service).

The current Florida State Definition, quoted in Ousley, Stephenson, and Miller, is as follows:

> A dropout is an individual not subject to the compulsory attendance law who leaves school either prior to high school graduation, or before completing a program of study without transferring to a private or public school or educational institution, and whose records have not been requested by another educational institution within sixty (60) school days during the required year.

As a number of studies will readily indicate, there is wide divergence between various definitions of dropouts (Goebel, 1986; Hess & Greer, 1986).

For the purposes of this summary, however, the dropout will be defined as one who leaves school and who pursues no immediate alternative educational or training program. This narrowing of the definition, as several studies show, would considerably reduce the dropout figures of many districts (Dade County Public Schools, 1983; Pallas & Verdugo, 1986).

A number of studies have emphasized the need for accurate methods for measuring the extent of the dropout problem. Goebel (1986) states: "Without some means for determining dropout rates and, hence, the holding power of our schools, it will not be possible to assess adequately the impact of intervention strategies aimed at curtailing the number of students who do dropout of school." But he adds that before the problem can be measured, it has to be defined and time periods for calculation have to be established. One problem the author found with the current methodology is that it does not include summer dropouts. He arrived at a formula to take this phenomenon into account. This formula, when applied to a district's dropout rate of 9.8 percent, yielded a radically different rate of 30 percent. This study is import for two reasons: 1) It underscores the danger of conservative estimates and 2) It presents a method for calculating the extent of the problem using resources available with the school.

The Evaluative Review of Dropout Reporting Procedures (Dade County Public Schools, 1983), also addresses the question of providing reliable data on the magnitude of the dropout problem, especially the inadequacy of definitions and inconsistency of applications. Based on their study, it was recommended that there should be a clarification of ambiguous definitions, a redefinition of withdrawal codes, improved training for registration personnel, and improved computer programs. They cautioned that this was a preliminary report.

Ousley et al. reached many of the same conclusions as the above survey (their findings are in the same district), but with greater emphasis on the methodology of the survey. As above, the review team pointed out that it was difficult to accurately identify dropouts as opposed to those students who leave to continue their education in another location or system. Their recommendations included the creation of a Uniform Data Collection Center and the establishment of a new position of "Super Registrar," with primary responsibility in a district for transcript requests and for the effects of such requests on data files.

Palls and Verdugo (1986) dealt with the problem of measuring (and thus of understanding) the dropout problem by offering a "typology of school dropouts," a scale which lists students in seven categories depending on whether their enrollment had been continuous or, in the case of interrupted enrollment, whether they had returned to school and under what circumstances. A comparison between this typology and various data sources on dropouts revealed a number of serious problems with the data sources. They stressed that it is important to take the age of the students into account because increasingly many older people are getting diplomas. "Much of the confusion about dropout rates stems from differing definitions of who is a dropout, what the appropriate base population should be, and when the phenomenon should be measured."

Among the questions they asked was whether the prospects for returnee-completers are closer to those of stay-ins (those who have never left school) or of stay-outs (those who dropout and never return). The authors discussed a National Longitudinal Study (currently in the planning stage) which will follow the progress of 1988 eighth graders for several years.

A study into the dropout problem in Appalachia by Cox and Spivey (1986) for the Research Triangle Institute focused on determining the degree of the problem in that region and the necessity of overcoming inconsistencies among various states and school districts involved, especially in methods of obtaining and reporting data. The results of the initial phase of this study indicated that the problem in Appalachia is severe, that many of the districts have dropout rates from one-and-one-half times to twice the national average.

## Predicting Dropouts by Identifying the Characteristics of Students and of Schools that are Associated with Dropping Out

Hess and Greer (1986) made a longitudinal computer survey of correlations between dropouts and other factors, especially being over age and having lower reading scores. They further correlated ethnicity with the above factors. They found that reading scores were the strongest predictor of dropping out.

In the course of their study, they discovered what they have termed a policy of "educational triage." "The Chicago public school system operates a two-tiered high school system which concentrates dropout prone students into inner city Black and Hispanic high schools," they wrote. This is supported by their tables of school-by-school figures. Where the correlations are imperfect, they were interpreted by the authors to show "how well" (or how poorly) the school had done given the level of students sent to it. They also determined that minorities at mostly white schools did better than minorities systemwide.

Concluding that student age is a major factor in the dropout problem, perhaps even more significant than reading scores, they stated, "It appears that a tougher retention policy, even if successful in raising reading scores, is likely to increase the number of students dropping out."

The relationship between retention and dropouts was more closely examined by Schulz, Toles, Rice, Brauer, and Harvey (1986) who employed statistical methods to determine a dropout "potential" among students. Their conclusion: retention is strongly associated with dropouts. "Over age students must have reading scores over two grade levels higher than normal-age students in order to have the same change of graduating." They recommended remedial reading

help without retention, as well as earlier promotion. they added further that studies will be necessary before the relationship is completely understood.

A different approach was taken by Toles, Schulz, Rice, Brauer, and Harvey (1986). They were interested in determining the effects of the schools on the dropout problem. To do they they correlated the expected dropout rate of a district's schools (based on student characteristics) with the schools' actual dropout rate. They suggested the following as possible factors in this relationship: community support, school safety, school discipline, grading policies, the availability of extra-curricular activities, the amount of homework, and the type and degree of support for less able students. This report suggested a number of statistical methods for studying the possible causative aspects of the dropout problem.

Zigmond, Thornton, and Kohnke concentrated their research on determining whether certain individual factors could be used to predict dropping out in Learning-Disabled (LD) and Non-Learning-Disabled (NLD) populations based upon such factors as socioeconomic level, parental education, individual characteristics, and school experience measures. They based their use of these factors on discriminate analyses of these variables.

They found that early retention and ninth grade retention were the best determinants for predicting dropouts in the NLD group. Eighth-grade attendance, race, and gender were better predictors for the LD group. Placement, IQ and achievement scores also helped to predict the LD group. "It appears that LD students at risk for dropping out in this school district could be identified quite accurately before 9th grade," they stated. "Since low middle school attendance and achievement appear to be highly related to dropping out, it might be advantageous to mount identification and intervention programs even prior to middle school."

They summarized their results as follows: "It would appear that factors which are related to dropping out in the normal school population may not be the same as those that are related to dropping out among LD students."

As with many of these studies, the authors suggest the need for more research. They also caution against using only one variable on which to base predictions.

## Economic and Social Costs of the Problem

Saterfiel and Blackbourn (1982) compared dropout figures in Mississippi with sales and income tax figures to provide an estimate of how much additional revenue would be generated by reduction of the present high dropout rates to 10 percent. The authors pointed out that this was only a single conservative estimate of the potential economic advantages of dropout prevention, that advantages other than this direct one of increased earnings and taxes would result. Nonetheless, the evidence from this study alone are that the economic benefits of dropout prevention are considerable.

## Programs to Prevent Dropouts

Cox and Spivey (1986), in addition to their research on the difficulty of measuring the extent of the dropout problem, examined the nature and success of current dropout-prevention programs in Appalacia. One of their findings was that the programs are often located in districts with the least problem. This may be subject to various interpretations, but it is obvious that the counties without such programs often have twice the need. Their study went on to examine a number of programs in Appalachia and their effects. These programs were funded by the Appalachian Regional Commission. One of their conclusions was that the support of both the community as a whole, and local businesses in particular, was crucial to the success of such a program.

Wehlage and Rutter (1986), concerned with finding ways to keep at-risk students in school and stimulating them to learn, proposed the development of a model program of dropout prevention and the means to test its effectiveness. They pointed out that it is important to discriminate between causative factors that the school can not change -- low socioeconomic status, single-parent homes, large families, minority status -- and other factors which the school could change -- low self-esteem, an external locus of control, or a lack of trust in the school disciplinary system.

They outlined the following goals: 1) establishment of a positive social bond between at-risk students and teachers; 2) activities which cause bonding to adult roles; and 3) providing of some sense of success. With these goals in mind, they proposed the characteristics of a model program as shown on the following page.

1) An alternative program, either a school-within-a-school or an alternative school. Such a program must be small and personal and teachers must have autonomy.

2) An improved teacher culture, encompassing an extended role (not confined only to course content). Collegiality is also recommended (the teachers would be jointly responsible).

3) An improved student culture including a candid attitude about the students' problems and a commitment to solve them. The authors also recommended an attitude of selectivity, the willingness to recognize that not every student will be helped by the program.

4) Changes in curriculum including more individualized and active learning, an emphasis on social skills, experiential learning, and potential exposure to vocational opportunities.

The authors advocate that any such model program be evaluated not with traditional numerical criteria alone, but with measures of improved self-esteem and internal locus of control. "Effectiveness of the model is not guaranteed through technical and formal implementation of administrative and curricular features such as small size, program autonomy, individualized instruction and experiential learning."

The authors outlined their choice of an instrument for testing a model program, the Wisconsin Youth Survey, which measures such constructs as locus of control, social bonding, and self-esteem.

Hargroves (1986), in The Boston Compact: A Community Response to School Dropouts, discussed a program formed by local businesses and universities and the public schools. It goals were to increase college and employment rates of high school graduates, adopt reading and math competency requirements for graduation, and reduce the dropout rate in the city of Boston.

Despite the findings of earlier studies to the contrary, the Compact's first efforts indicated that jobs and training helped in dropout prevention. But later findings (1984-85) were disappointing. The author theorized that

the increased dropout rate may have been connected to a growing economy and the attractiveness of jobs to potential dropouts, but concluded that "...the Boston data as yet shed no light on the reason why young people leave school."

Part II of the paper looked at the process and plan for producing an organizational structure to counter the dropout problem in Boston. Decisions that needed to be made included: At what grade level should such a plan begin? How much data would be needed before such a program could be implemented? To what extent should dropout-prevention problems be allowed to compete with the school's obligation toward mainstream students?

The goals of their program included a reduced projected dropout rate and the guarantee of placement in either a job, a job training program, or higher education for all public-school graduates certified as literate. The Boston school system has initiated alternative programs, support services for dropouts, and policy and administrative changes to further these goals. This report strongly emphasized the necessity of total community involvement for any successful program.

## The Relationship Between Dropouts and Academic Reform

In the January 1986 issue of the ERS Bulletin the nature of the problem of school reform and dropouts was discussed by Charles Robb, governor of Virginia:

> We recognize that school reforms cannot help young people who are not in school, and that more rigorous curricula might discourage some students and cause them to drop out of school. We now must move to meet the needs of those who, despite or because of school reform, are at a greater risk of being lost to society as productive individuals.

Cox and Spivey (1986), in their paper on the Appalachian dropout problem, pointed out that "states reported the primary reason for dropping out (about 60 percent of the cases) to be poor academic achievement and related reasons. This could raise, of course, some questions as to what the move toward raising academic standards will do to the dropout rate."

McDill, Natriello, and Pallas (1986), in an analysis of the likely effects of advocated school reforms on at-risk students, found that although the kind of intensive core courses advocated by current school reformers did indeed significantly aid the test scores of average students, this did not extend to below average students. For students with low grade point averages, completion of more rigorous core requirements added little to their Scholastic Aptitude Test scores. "Students with limited ability in traditional academic subjects may have to face repeated failure with little opportunity to engage in the broad range of activities valued in adult society that might afford them some success and encourage them to redouble their efforts to master academic content." They also pointed out that increased time demands could conflict with work and cause the possible loss of extracurricular activities.

Although raising achievement demands may help many students, the authors pointed out that teachers will have to give other students special attention, especially at-risk students who are vulnerable to increased negative feedback resulting from higher standards.

In order to effect school reform and help at-risk students, they recommended the following factors be modified: the size of schools, the structure and content of the curriculum (it should be individualized), the "climate" of the schools (e.g., governance, attainability of academic rewards, support for achievement).

In order to support or refute the hypothesis that certain course and extracurricular activities aid in dropout prevention, the Austin Independent School District calculated Z-scores for high-risk students who remained in selected courses (Doss, 1986). The results of this study, however, should be accepted guardedly since the study was conceived and carried out hastily and factors not associated with the hypothesis could not be measured or accounted for. A tentative conclusion was that varsity sports do aid in dropout prevention. The classification of students as high-risk was based on a discriminant analysis which correlated such factors as grade point average, ethnicity, gender, and the number of serious discipline incidents from the preceding school year with past incidence of dropping out.

## SUMMARY

The dropout problem offers several perspectives from which it may be viewed. A number of the most current research papers are concerned with the difficulty of measuring that problem and this measurement difficulty seems to depend in part on how a dropout is defined. Several authors (Dade County Public Schools, 1983; Pallas & Verdugo, 1986) recommend that statistical procedures be overhauled and that improved methods be instituted for counting the incidence of dropouts.

The dropout problem may have a number of causative factors which can be studied including student variables, school characteristics, and even the deliberate tracking policies of some districts.

Additional research is being conducted on the economic and social costs of the dropout problem. The research cited in this brief suggested that this cost is considerable (Saterfiel & Blackbourn, 1983).

A number of studies have investigated possible ways of preventing or alleviating the problem (Cox & Spivey, 1986; Wehlage & Rutter, 1986). Among their recommendations are alternative education and remediational programs, centered around changes in both teaching methods and curriculum.

A fifth aspect of the dropout problem is the possible danger to at-risk students of the new movements toward educational reform. One study proposes a number of ways to achieve school reform and help alleviate the dropout problem (McDill et al.), while another report suggested that there may be a relationship between certain elective courses and dropout prevention (Doss, 1986).

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